

absence of said [visible entrance laser] first beam;

a second radiation source producing a [visible exit laser] second beam and arranged at said one side of the roadway and being spaced apart by a predetermined distance from said first radiation source;

a second detector arranged at said opposite side of the roadway to receive said [visible exit laser] second beam from said second radiation source for producing an output signal indicating the presence or absence of said [visible exit laser] second beam;

wherein front and rear wheels of the motor vehicle each interrupt said [visible entrance laser] first beam and said [visible exit laser] second beam and the interruptions are detected by said first and second detectors; and

analyzing means receiving said output signals from said first and second detectors for calculating the speed and acceleration of the motor vehicle.

Amend claim 2 as follows:

2. (Amended) The apparatus according to claim 1 wherein the analyzing means further comprises:

timing means for measuring time;

determining means for producing a pulse when said front wheel and rear wheel passes into and departs from said first beam and said second beam, respectively;

memory means for storing each measured time when said determining means produces said pulse indicating that said front and rear wheels passed into and out of said [visible entrance laser] first beam and said [visible exit laser] second beam, respectively; and

calculating means for calculating said speed and acceleration using said predetermined distance and each of said measured times recorded by said recording means.

Amend claim 5 as follows:

5. (Amended) The apparatus according to claim 2 wherein said [visible entrance laser] first beam and said [visible exit laser] second beam are unmodulated.

Amend claim 7 as follows:

7. (Amended) A method for determining speed and acceleration of a motor vehicle traveling on a roadway comprising the steps of:

producing a plurality of [visible laser] beams spaced apart by a predetermined distance and

directed across the roadway;

arranging the plurality of [visible laser] beams at a height to be interrupted by front and rear wheels of the motor vehicle;

determining when the front and rear wheels pass into and out of each of said plurality of [visible laser] beams;

producing a time measurement at each determined occurrence;

recording each of said time measurements when the front and rear wheels pass into and out of each of said plurality of [visible laser] beams, respectively; and

calculating a speed value and an acceleration value from said fixed distance and each of the time measurements recorded in said step of recording.

Amend claim 9 as follows:

9. (Amended) Apparatus for detecting acceleration of a motor vehicle passing along a roadway comprising:

means for producing first and second [visible laser] beams spaced apart by a predetermined

PATENT
Attorney Docket No. 47382.000060

distance on one side of the roadway and arranged at a height above the roadway so as each to be interrupted by a front wheel and a rear wheel of the motor vehicle;

detector means arranged at a side of the roadway opposite said one side for receiving said first and second [visible laser] beams and producing respective output signals indicating interruptions of said first and second [visible laser] beams by the front and rear wheels of the motor vehicle;

measuring means for receiving said output signals from said detector means for producing time measurements at each occurrence of said interruptions of said first and second [visible laser] beams and for producing time measurements at each resumption of each interrupted first and second [visible laser] beams; and

calculating means receiving said time measurements from said measuring means for calculating an acceleration of the motor vehicle based on said predetermined distance.

Please add the following new claims:

10. (New) Apparatus for determining speed and/or acceleration of a vehicle comprising:

at least one radiation source projecting radiation across the vehicle's path;

at least one detector receiving at least a portion of the projected radiation; and

an analyzer for receiving a plurality of signals from said at least one detector, said analyzer calculating a speed and/or acceleration of the vehicle based upon at least two points of intersection between the radiation and the vehicle's path that are separated by a predetermined distance.

11. (New) The apparatus of claim 10, wherein the analyzer includes a timer, a memory, and a calculating circuit.

12. (New) The apparatus of claim 10, further comprising a vehicle emission testing system for receiving the calculated speed and/or acceleration of the vehicle.

13. (New) The apparatus of claim 10, wherein the radiation includes radiation in the visible light spectrum.

14. (New) The apparatus of claim 10, wherein the radiation is unmodulated.

15. (New) The apparatus of claim 10, wherein the radiation includes a plurality of laser beams.

16. (New) The apparatus of claim 10, wherein the radiation includes an entrance beam and an exit beam.

17. (New) The apparatus of claim 10, wherein said at least one radiation source is arranged on one side of the vehicle's path and said at least one detector is arranged on an opposite side of the vehicle's path.

18. (New) A method for determining speed and/or acceleration of a vehicle comprising the steps of:

projecting radiation across the vehicle's path;

identifying a first time when a first portion of the vehicle breaks the projected radiation at a first location;

identifying a second time when the first portion of the vehicle breaks the projected radiation at a second location; and

calculating the vehicle's speed using the first and second times and a predetermined distance between the first location and the second location.

19. (New) The method of claim 18, further comprising the steps of:

identifying a third time when a second portion of the vehicle breaks the projected radiation at the first location;

identifying a fourth time when the second portion of the vehicle breaks the projected radiation at the second location; and

calculating the vehicle's speed and/or acceleration using the first, second, third, and fourth times and the predetermined distance between the first location and the second location.

20. (New) The method of claim 18 further comprising the steps of:

identifying a fifth time when the first portion of the vehicle leaves the projected radiation at the first location;

identifying a sixth time when the first portion of the vehicle leaves the projected radiation at the second location;

identifying a seventh time when the second portion of the vehicle leaves the projected radiation at the first location;